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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/775,639

02/05/2001

Yoshimasa Ogawa

21.1999/CJG

8304

21171

7590

03/13/2006

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EXAMINER

SELBY, GEVELL V

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/775,639

Applicant(s)

OGAWA, YOSHIMASA

Examiner

Gevell Selby

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 8-12, 18 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18, 20, 21, 23, 24 and 26 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-12, 22 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/21/05 has been entered.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Response to Arguments***

3. Applicant's arguments filed 12/21/05 have been fully considered but they are not persuasive. The applicant submits the prior art does not disclose the following limitations of the claimed invention:

1) "the number of the plurality of line buffers arranged in the vertical direction is less than  $v$ ", as claimed in claim 1;

2) "the plurality of line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction", as claimed in claims 18 and 20-24. The examiner respectfully disagrees.

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Examiner's Reply:

Re claim 1) In regard to claim 1, the Kamasz reference discloses the plurality of line buffers arranged in the vertical direction is less than  $v$ , because there are no line buffers arranged in the vertical direction which is less than  $v = 5040$ .

Re claims 18 and 20-24) In regard to claims 18 and 20-24, the Kamasz reference discloses the plurality of line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction, because there are no line buffers arranged in the vertical direction which is less than the number of photosensors arranged in the vertical direction, 5040.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamasz et al. US 5,650,352.**

In regard to claim 1, Kamasz et al., US 5,650,352, discloses a solid-state imaging element, comprising:

a plurality of light-receiving sensors (see figure 7, element 80) converting optical signals to electrical signals (see column 8, lines 36-38), the plurality of light-receiving sensors arranged in  $v \times h$  (vertical x horizontal) matrix (see figure 7: 5040 X 5040 pixels); and

a memory (see figure 7, element 82) storing the electrical signals as optical image data, said memory being formed of a plurality of line buffers (see figure 7 and column 8, lines 38-51: The HCCD is made up of 8 line buffers with 8 output taps (84)), and the number of the plurality of line buffers arranged in the vertical direction is less than  $v$  (line buffers arranged in the vertical direction = 0 is less than  $v = 5040$ ).

In regard to claim 2, Kamasz et al., US 5,650,352, discloses the solid-state imaging element of claim 1, further comprising:

a first switch circuit connecting one of the line buffers and said light-receiving sensors (see column 8, lines 36-45: it is inherent there is a switch to connect one of the line buffers and the sensors in order to transfer signals to the HCCD with the appropriate timing).

In regard to claim 3, Kamasz et al., US 5,650,352, discloses the solid-state imaging element of claim 2, wherein the data in the line buffers are output in parallel (see column 8, lines 36-45: Each line buffer has a separate output to output from each one in parallel).

In regard to claim 4, Kamasz et al., US 5,650,352, discloses the solid-state imaging element of claim 1 comprising:

a switch circuit selecting one of the line buffers to output the electrical signal (see column 8, lines 36-45: It is inherent that there are switches to control the flow of the signals from each register to the transfer section).

**6. Claims 22 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Morimoto, 5,969,759.**

In regard to claims 22 and 25, Morimoto, 5,969,759 discloses a charge-coupled device (CCD) and the method of outputting image data from the CCD, comprising:

an array of photosensors (see figure 3) arranged in  $v$  vertical lines and horizontal lines corresponding to an  $n \times v$  pixel array of image data (see column 5, lines 9-16), each horizontal line being divided into  $k$  line sections, each line section corresponding to  $m$  ( $m < k$ ) pixels of image data the plurality of photosensors arranged in  $v \times h$  (vertical  $\times$  horizontal) matrix (see column 5, lines 16-21); and

a plurality of  $k$  line buffers (see figure 3, element 102a-d), each line buffer holding up to  $m$  pixels of image data, and the number of the plurality line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction (the number of the  $k$  line buffers arranged in the vertical direction is 0, which is less the number of photosensors in the vertical direction), wherein blocks of  $n \times m$  pixels of image data are transferred from the array of photosensors to the line buffers, such that a first one of the buffers receives  $m$  pixels from a horizontal line and outputs the  $m$  pixels before receiving another  $m$  pixels from the next horizontal line and so forth until a first block of  $n \times m$  pixels has been transferred and output, and repeating the transfer and output operations for each remaining line buffer and the remaining image data (see column 7, lines 8-27).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamasz, US 5650,352, in view of Juen, US 5818,524.**

In regard to claim 8, Kamasz, US 5650,352, discloses an image processor, comprising:

a solid-state imaging element (see figure 7, element 80) comprising a plurality of light receiving sensors to convert optical signals to electrical signals (see column 8, lines 36-38), the plurality of light-receiving sensors arranged in v x h (vertical x horizontal) matrix (see figure 7: 5040 X 5040 pixels); and

an electrical signal holder (see figure 7, element 82) within said solid-state imaging element comprising line buffers (see figure 7 and column 8, lines 38-51: The HCCD is made up of 8 line buffers with 8 output taps (84)), wherein the number of the plurality of line buffers arranged in the vertical direction is less than the light receiving sensors arranged in the vertical direction (line buffers = 0 is less than v = 5040).

The Kamasz reference does not disclose an encoder encoding the electrical signals in units of n.times.m pixels.

Juen, US 5,818,524, discloses a digital still image camera with an irreversible encoder that codes image data before saving onto a recording medium (see figure 2, element 28 and column 4, lines 5-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Kamasz, US 5650,352, in view of Juen, US 5818,524, to have an encoder encoding the electrical signals in units of  $n \times m$  pixels in order to compress image data output from the image sensor so the more data may be stored on a recording medium.

In regard to claim 9, Kamasz, US 5650,352, in view of Juen, US 5818,524, discloses the image processor of claim 8, further comprising:

a first switch circuit connecting one of the line buffers and the light receiving sensors (see Kamasz: column 8, lines 36-45: it is inherent there is a switch to connect one of the line buffers and the sensors in order to transfer signals to the HCCD with the appropriate timing).

In regard to claim 10, Kamasz, US 5650,352, in view of Juen, US 5818,524, discloses the image processor of claim 9, wherein data in the line buffers are output in parallel (see Kamasz: see column 8, lines 36-45: Each line buffer has a separate output to output from each one in parallel).

In regard to claim 11, Kamasz, US 5650,352, in view of Juen, US 5818,524, discloses the image processor of claim 8, further comprising:



a switch circuit selecting one of the line buffers to output the electrical signal (see Kamasz: column 8, lines 36-45: It is inherent that there are switches to control the flow of the signals from each register to the transfer section).

In regard to claim 12, Kamasz, US 5650,352, in view of Juen, US 5818,524, discloses the image processor of claim 8, wherein said encoder is a JPEG encoder (see Juen: see column 4, lines 13-15).

***Allowable Subject Matter***

9. Claims 18, 20-21, 23, 24, and 26 are allowed.
10. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 18-21, the prior art does not disclose a charge-coupled device with the combination of limitations of the claimed invention, specifically the limitations of:

a horizontal CCD having  $n$  line buffers, each buffer holding up to  $v$  pixels of image data and the number of the plurality of line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction; a first switch circuit connected to each of the vertical lines and the line buffers; a first switch control circuit controlling said first switch circuit so that each line buffer sequentially connects to said vertical CCD, the image data in sequential ones of the  $n$  horizontal lines of said vertical CCD being transferred to a corresponding one of the  $n$  line buffers; a second switch circuit connected to the line buffers and an external circuit; and a second switch control circuit controlling said second switch circuit so that each line buffer

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sequentially connects to the external circuit, the image data in the line buffers being transferred to the external circuit in blocks of  $n \times m$  ( $m < v$ ) pixels, each line buffer in each block transferring  $m$  pixels, as claimed in claim 18.

In regard to claims 23, the prior art does not disclose a charge-coupled device with the combination of limitations of the claimed invention, specifically the limitations of:

a plurality of  $n$  line buffers, each line buffer holding up to  $v$  pixels of image data, and the number of the plurality of line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction, wherein each line buffer sequentially connecting to said array, the image data in sequential ones of the  $n$  horizontal lines of said array being transferred to a corresponding one of the  $n$  line buffers, the image data in the  $n$  line buffers being output in parallel.

In regard to claims 24, the prior art does not disclose a method for outputting from a charge-coupled device with the combination of limitations of the claimed invention, specifically the limitations of:

connecting, sequentially, each one of a plurality of  $n$  line buffers to the array of photo sensors, each line buffer holding up to  $v$  pixels of image data, and transferring the image data in sequential ones of the  $n$  horizontal lines of the array to a corresponding one of the  $n$  line buffers, the number of the plurality of line buffers arranged in the vertical direction is less than the number of photosensors arranged in the vertical direction; and outputting, sequentially, the image data of

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each line buffer, the image data in the line buffers being output in blocks of  $n \times m$  ( $m < v$ ) pixels, each line buffer in each block outputting  $m$  pixels.

In regard to claims 26, the prior art does not disclose a method for outputting from a charge-coupled device with the combination of limitations of the claimed invention, specifically the limitations of:

connecting, sequentially, each one of a plurality of  $n$  line buffers to the array of photo sensors, each line buffer holding up to  $v$  pixels of image data, and transferring the image data in sequential ones of the  $n$  horizontal lines of the array to a corresponding one of the  $n$  line buffers, and outputting the image data in the  $n$  line buffers in parallel,

wherein the plurality of line buffers is arranged in a vertical direction and is less than the number of the photosensors arranged in the vertical direction.\

### *Conclusion*

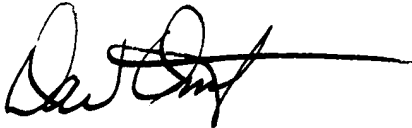
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gvs



DAVID OMETZ  
SUPERVISORY PATENT EXAMINER